



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/708,393

02/27/2004

Junaid Syed

3040

2392

31424

7590

11/08/2005

BABCOCK IP LLC  
24154 LAKESIDE DRIVE  
LAKE ZURICH, IL 60047

EXAMINER

LIE, ANGELA M

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-6 and 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kildal (US 6137449) in the view of Tubbs (US 4876554).

As to claims 1 and 10, Kildal teaches a radome for a reflector antenna and he inherently teaches a method for the front/back ratio of a reflector antenna, comprising a radome (Figure 2, element 50) with a conductive ring (Figure 2, element 51) having an inward facing edge proximate a periphery of the radome (the edge of the element 51 facing toward element 41). Kildal does not teach that the inward facing edge extends inward along the radome at least to an inner diameter of a distal end of a main reflector of the reflector antenna. Tubbs teaches an antenna with a radome cover attached by the ring that faces toward inner diameter and which curves along radome layer (Figure 2, elements 126 and 14). It would have been obvious to one of the ordinary skill in the art during the time when the invention was made to use the ring that extends inwards toward the inner diameter of the reflector antenna along the radome as taught by Tubbs, in Kildal's attachment means, because this would allow for stronger attachment since ring would be in contact with radome for a greater length. This on the other hand

Art Unit: 2821

would result in more durable connection i.e. if greater area of two elements is involved in attaching those two parts together, there is lower probability of detachment.

Furthermore it is very important that radome layer is attached very durably, so wind or other weather disturbances will not cause the detachment of radome from the rest of the antenna.

As to claims 2 and 16, Kildal discloses the apparatus wherein the conductive ring (Figure 2, element 51) extends from an inside surface (Figure 2, the part of the element 50, which is located between two arms of the metal ring, facing toward the element 41) to an outside surface (Figure 2, the part of the element 50, which is located between two arms of the metal ring, facing away from the element 41), around a periphery of the radome (as shown in the figure 2, elements 50 and 51).

As to claims 4, 11 and 18, Kildal discloses the apparatus wherein the conductive ring is one of metalised, electroplated or over molded upon the radome (column 6, lines 59-63).

As to claims 5 and 19, Kildal discloses the apparatus wherein the conductive ring is one of metal, metallic foil, adhesive foil or a conductive rubber coupled to the radome (column 6, lines 56-58, i.e. conductive ring is made of metal).

As to claims 6 and 12, Kildal discloses the apparatus wherein the conductive ring is a plurality of electrically isolated segments (Figure 14, elements 41, 42 and 51, where the element 42 is a metalized segment of the ring and the element 41 is a dielectric which isolate segment 51 from segment 42).

As to claims 9 and 14, Kildal discloses the apparatus wherein the conductive ring on the outside surface has a smaller inner diameter than the conductive ring on the inside surface (Figure 14, elements 50 and 51, since the inner surface diameter (i.e. facing toward the element 41) shapes along the slight curvature of the periphery of radome, and the inner diameter of the outside surface shapes along substantially straight line, it results in the inside diameter of the outer surface to be smaller than the diameter of the inner surface).

As to claim 13, Kildal discloses the reflector antenna which inherently involves the method wherein the conductive ring (Figure 2, element 51) is coupled to the conductive ring (Figure 2, element 51) whereby it extends around the periphery from an inside surface (the side of the element 50 facing in the open end of the reflector dish (10)) to an outside surface (the side of the element 50 facing away from the open end of the reflector dish (10)).

As to claim 15, Kildal discloses a reflector antenna comprising: a sub reflector positioned to redirect an RF signal from a feed to illuminate a reflector (column 1, lines 44-49, the main purpose of the sub reflector is to reflect an RF signal onto the reflector (10), because otherwise the reflector antenna could not operate), a radome (figure 2, element 50) adapted to cover an open distal end of the reflector (as shown in figure 2, elements 50 and 10); and a conductive ring (Figure 2, element 51) coupled to the radome having an inward facing edge proximate a periphery of the radome (as shown in figure 2, where the edge surrounding the periphery of the radome (50) is an inward edge). Kildal does not teach that the inward facing edge extends inward along the

Art Unit: 2821

radome at least to an inner diameter of a distal end of a main reflector of the reflector antenna. Tubba teaches an antenna with a radome cover attached by the ring that faces toward inner diameter and which curves along radome layer (Figure 2, elements 126 and 14). It would have been obvious to one of the ordinary skill in the art during the time when the invention was made to use the ring that extends inwards toward the inner diameter of the reflector antenna along the radome as taught by Tubbs, in Kildal's attachment means, because this would allow for stronger attachment since ring would be in contact with radome for a greater length. This on the other hand would result in more durable connection i.e. if greater area of two elements is involved in attaching those two parts together, there is lower probability of detachment. Furthermore it is very important that radome layer is attached very durably, so wind or other weather disturbances will not cause the detachment of radome from the rest of the antenna.

As to claim 17, Kildal teaches the apparatus wherein the conductive ring has an inner diameter proximate an inner diameter of a reflector dish open end (column 6, lines 56-58, since metal ring (51) goes around the open end of the reflector dish (10) it is inherent that the diameter of the metal ring will be proximate to the diameter of the open end of the reflector dish).

### ***Allowable Subject Matter***

3. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 7, the prior art failed to teach an apparatus as disclosed in claim 1, further including an absorber coupled to the inside of the radome periphery.

As to claim 8, the prior art failed to teach the apparatus as disclosed in claim 1, wherein the absorber is one of a foam ring and an absorbing surface coating.

### ***Response to Arguments***

5. Applicant's arguments filed September 30, 2005 have been fully considered but they are not persuasive.

With respect to the applicant's assertion on page 2, third paragraph, that Tubbs does not teach a "main reflector" dish to which the radome is attached, the examiner agrees that element 12 is not a main reflector, however it is important to note that the examiner used Tubbs teaching as a secondary reference, and it is used to show structural similarity of ring (126). In this case element 12, corresponds to main reflector. Kidal's invention was used as a main reference and he clearly teaches a main reflector (element 10). Further, the applicant argues that ring plays no part in the electrical performance of the antenna, the examiner agrees with this statement, however the applicant does not mention in his claims that the ring changes the electrical performance of the antenna. In the applicant's claims ring is also described purely structurally, and therefore this argument does not show any relevance to the invention claimed.



With respect to the argument on page 2, the bottom portion of third paragraph, stating that Tubbs fails to disclose inward facing edge (of the conductive ring) extending inward along radome at least to an inner diameter of a distal end of a main reflector of the reflector antenna, the examiner disagrees with this statement. Tubbs does teach a ring facing inwards toward inner diameter, wherein the element 12 corresponds to the main reflector. Furthermore it is important to note that that Tubbs reference was used to show a ring being attached to the antenna structure in the manner disclosed by the applicant. Kildal's invention was used as a main reference, and this reference indeed shows such a structural elements as main reflector, therefore those two references combined together do teach all the limitations claimed by the applicant.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the combination for combining Tubb's and Kildal's references was found in the knowledge generally available to one skilled in the art.

With respect to applicant's assertion In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. electrical effect of the choke) are not recited in



Art Unit: 2821

the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to the applicant's assertion on page 3, second paragraph, that extending the edge along the radome surface further inward than the portion contacting the main reflector has no purpose, the examiner disagrees with this statement. As clearly written in the motivation for combining Kildal's and Tudd's teachings, it is suggested that longer extension would allow for a tighter and more durable connection. The applicant seems to disagree with this statement, however the examiner holds her position on this issue because it is well known to one of ordinary skill in the art that once two objects are connected for a greater length, the connection is stronger because there is a greater area in which grip can be formed. For instance if two objects ought to be glued together, it is better idea to spread glue for a greater area in which those objects overlap because that creates stronger connection. Furthermore, as it was also mentioned previously in the motivation for combining two arts, stronger and more durable connection is a critical feature because antennas are placed outdoor and they are subject to various extreme weather conditions, therefore it is really important to make sure that the radome cover does not detach.

6. Claims 1-19 remain rejected.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Inquiry***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. Lie whose telephone number is 571-272-8445. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2821

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Angela M Lie

  
SHIH-CHAO CHEN  
PRIMARY EXAMINER